



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/682,076

07/17/2001

Shantanu V. Kaushikkar

3351.3

2284

22886

7590

01/12/2005

AFFYMETRIX, INC

ATTN: CHIEF IP COUNSEL, LEGAL DEPT.

3380 CENTRAL EXPRESSWAY

SANTA CLARA, CA 95051

EXAMINER

EDWARDS, PATRICK L

ART UNIT

PAPER NUMBER

2621

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/682,076

Applicant(s)

KAUSHIKKAR ET AL.

Examiner

Patrick L Edwards

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-23 and 25-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-23 and 25-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>08-09-2004</u> | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2621

DETAILED ACTION

1. The response received on October 20, 2004 has been placed in the file and was considered by the examiner. An action on the merits follows.

Response to Arguments

2. The applicant's arguments, filed on October 20, 2004, have been fully considered. A response to these arguments is provided below.

Specification Objections

Summary of Argument: In the previous office action, the specification was objected to because of a typographical error in the abstract, and improper incorporation by reference. Applicant has amended the specification to correct the aforesaid problems.

Examiner's Response: Applicant's amendment to the specification has been received and is greatly appreciated. The previous objections to the specification are hereby withdrawn.

35 USC § 101 Claim Rejections

Summary of Argument: Claims 18-25 were rejected in the previous office action because claim 18 was directed to non-statutory subject matter and failed to recite any functionally descriptive material. Claims 19-25 were rejected because of their dependency to the rejected claim 18. The applicant has adopted the examiners suggestion and amended claim 18 to comply with 35 USC § 101.

Examiner's Response: The examiner greatly appreciates the applicant's efforts to resolve this issue. The previous rejection to claims 18-25 under 35 USC § 101 is hereby withdrawn.

Prior Art Rejections

Summary of Argument: Applicants have amended independent claims 1, 18, 27, 32, and 33 to incorporate the limitation of receiving user-selected grid aligning parameters which include an estimated probe feature size; and aligning a grid with a first image based upon these parameters. Applicant's argue that the previously relied upon Shams reference is deficient with respect to these added limitations.

Applicants further argue that the Ramm et al reference (USPN 6,345,115) fails to disclose, teach, or suggest the limitation of capturing two images in parallel with two excitation beams. Specifically, the applicant argues that the relied upon passage discloses the capture of a single image, not two images as is required by the claim.

Examiner's Response: Applicant's first argument (regarding the Shams reference) has been fully considered, but is not persuasive. The applicant admits that Sham discloses user selection of a grid size (see remarks

Art Unit: 2621

pg. 14), but asserts that this is not equivalent to an estimated probe feature size. The examiner disagrees. Shams discloses that the spot images correspond to the grid points (col. 5 lines 53-55). Shams further discloses that a 'bounding area' is selected according to the user selected grid (col. 6 lines 46-52). The applicant asserts that "the actual size of a probe feature cannot be directly inferred from the area bounded by the grid lines due to the variable nature of inter-feature spacing". The examiner agrees with this statement, but would like to note that the claim does not require an exact determination of size, but only a size estimate. Applicant is reminded that the claims are given their broadest reasonable interpretation (see MPEP 2106). The examiner asserts that given the broadest reasonable interpretation of the claim, that this limitation is clearly met by the Shams reference, because the user-defined grid may not be an exact determination of feature size, but clearly qualifies as an estimate of feature size, since the bounding area is determined from the grid.

Applicant's second argument (regarding the Ramm reference) has been fully considered, but is not persuasive. The examiner would like to make note of the fact that the previous office action cited two passages and a figure from the Ramm reference. Applicant's argument relies solely on one of the cited passages, but does not consider the two cited passages as a whole, in conjunction with the cited figure 8. Referring back to Figure 8 and its accompanying explanation, we see that Ramm discloses capturing two images in parallel (The figure shows that the acquisition of the least two images (specimen specific image 502 and specimen second sight image 506) is performed in parallel). Figure 8 and its accompanying explanation do not discuss the excitation beams used in the parallel capture of the two images. The passage cited at col. 3 of the reference states that the images are acquired using any excitation wavelength. This disclosure clearly implies that the images can be captured using different wavelengths.

However, even if we assume, *arguendo*, that Ramm merely discloses a singular wavelength (as is asserted in the applicants arguments (see remarks pg. 17)), the limitation is still met by the reference. The limitation in question merely calls for 'two excitation beams'. The claim does not require that these excitation beams have different frequencies. Therefore, the Ramm reference, which discloses parallel acquisition of two images as is discussed above, inherently discloses using two excitation beams (i.e. one for each image), and the reference still reads on the limitation in question.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 9 and 26 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a

Art Unit: 2621

way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

These claims recite the limitation that the estimated probe feature size includes a dimension of a depositing element. These claims are dependent on claims 1 and 18, respectively, which recite that the estimated probe feature size is selected by a user. Thus, claims 9 and 26 require that the user select a dimension of a depositing element. This limitation, however, is not described in the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 9 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims recite the limitation that the estimated probe feature size includes a dimension of a depositing element. These claims are dependent on claims 1 and 18, respectively, which recite that the estimated probe feature size is selected by a user. Thus, claims 9 and 26 require that the user select a dimension of a depositing element. This limitation, however, is not described in the specification. Therefore, the metes and bounds of these claims are unclear.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-6, 8-9, 13-23, 25-28 and 30-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Shams (USPN 6,349,144).

With regard to claim 1, Shams discloses receiving one or more user-selected grid aligning parameters, wherein these parameters include an estimated probe feature size (col. 6, lines 6-55, in conjunction with the above 'response to arguments' section).

Shams further discloses aligning a grid with a first image based on user selected parameters (col. 3 lines 57-62 with element 28 of Figure 3a), and generating grid alignment data based on the alignment of the grid with the first image (col. 10 lines 57-59 with elements 74 and 76 of Figure 8). The direction vectors 'd' and 'e' disclosed in

Art Unit: 2621

Shams are analogous to the grid alignment data recited in the claim. Shams additionally discloses that this data is stored in memory (col. 11 lines 16-18).

Shams further discloses retrieving the grid alignment data responsive to an indication to analyze a second image and analyzing the second image based on the retrieved grid alignment data (col. 11 lines 16-27). The non-control image disclosed in Shams is analogous to the second image recited in the claim. Shams disclosed that the "grid position determined in steps described above" (analogous to the claimed grid alignment data) is applied to this second image. Shams discloses retrieving the grid alignment data from the memory 14 (col. 11 lines 18-19) in response to an indication to analyze a second image.

With regard to claim 18, Shams further discloses a computer program product for performing the above method (col. 5 lines 63-66). Shams further discloses a GUI manager (col. 13 lines 58-62)

With regard to claim 27, Shams further discloses a scanner (element 130 of Figure 13), for scanning a probe array (col. 5 lines 28-30). The DNA micro-array disclosed in Shams qualifies as a probe array as recited in the claim (per paragraph [0036] of applicant's specification). Shams further discloses scanning a first probe array to generate a first and second image (col. 11 lines 27-30).

With regard to claim 32, all of the limitations of the claim have been discussed in the above arguments.

With regard to claim 33, Shams further discloses generating images by scanning different probe arrays (col. 13 lines 24-26).

With regard to claims 2 and 19, the further limitations of these claims have been discussed in the above arguments. Specifically, the limitations of the claim were addressed with respect to claim 27.

With regard to claims 3 and 20, Shams discloses that the first image is generated by scanning the first probe array with a first excitation beam and the second image is generated by scanning the first probe array with a second excitation beam (col. 11 lines 27-31). The first and second laser frequencies disclosed in Shams are analogous to the first and second excitation beams recited in the claim.

With regard to claims 4 and 21, Shams discloses that the second excitation beam has a second wavelength different from the first wavelength (col. 11 lines 27-31). In the cited passage, Shams discloses excitation beams with different frequencies. Since frequency and wavelength are inversely proportional, it follows that Shams inherently discloses excitation beams with different wavelengths.

With regard to claims 5 and 22, Shams discloses a spotted array (col. 3 lines 15-17).

With regard to claims 6 and 23, Shams discloses a synthesized array (Shams Background).

With regard to claims 8 and 25, Shams discloses that the user-selected grid aligning parameters include any one or more of the group consisting of a fixed algorithm shape with easy threshold, a fixed algorithm shape with tight threshold, a variable algorithm shape with easy threshold, a variable algorithm shape with tight threshold, or an estimated feature size. For example, Shams discloses an estimated feature size (col. 6 lines 15-35).

With regard to claims 9 and 26, Shams further discloses that the estimated feature size is based on a dimension of a depositing element (col. 5 lines 27-37).

Art Unit: 2621

With regard to claim 13, Shams discloses retrieving the grid alignment data responsive to an indication to analyze one or more images in addition to the first and second images, and analyzing each of the one or more additional images based on the retrieved grid alignment data (col. 11 lines 16-26).

With regard to claim 14, Shams discloses receiving a user selection of a number of images to scan, and scanning the user-selected number of images (col. 11 lines 22-23).

With regard to claim 15, Shams discloses receiving a user selection of one or more parameters for scanning (col. 11 lines 27-31). The particular laser frequency disclosed in Shams qualifies as a scanning parameter as recited in the claim.

With regard to claim 16, Shams discloses The one or more parameters for scanning include a gain for one or more of the user-selected number of images (col. 11 lines 27-31). Shams discloses a user-selected scanning frequency. Since the gain of a scanned image is a function of the scanning frequency, it follows that Shams inherently discloses receiving a user-selection for image gain.

With regard to claim 17, Shams discloses that the one or more parameters for scanning include an indicator of an excitation source for one or more of the user-selected number of images (col. 11 lines 27-31). This limitation is inherently taught by the Shams disclosure in that any scanner inherently includes an indicator of its excitation source.

With regard to claim 28, Shams further discloses sequential scanning (col. 11 lines 16-40).

With regard to claim 30, Shams further discloses that the user inputs the number of images to scan (col. 11 lines 16-40). Shams also discloses a GUI manager (col. 13 lines 58-62).

With regard to claim 31, Shams further discloses that the user-selected number of images to scan is greater than two, and the multiple scan alignment controller retrieves the grid alignment data responsive to an indication to analyze one or more images and the image analyzer analyzes at least one of the one or more additional images based on the retrieved grid alignment data (col. 11 lines 16-30).

Claim Rejections - 35 USC § 103

9. Claims 10-12 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shams as applied to claims 1 and 27 above, and further in view of Ramm et al. (USPN 6,345,115). The arguments as to the relevance of Shams as applied above are incorporated herein.

With regard to claims 10, 12 and 29, Shams fails to expressly disclose scanning both the first and second images before aligning the first image with a grid. It follows that Shams also fails to expressly disclose capturing the two images in parallel with two excitation beams.

Ramm, however, discloses scanning in a first and second image before aligning the first image with a grid (Ramm Figure 8 with col. 20 line 37 – col. 21 line 48). Ramm further discloses capturing two images in parallel with two excitation beams (col. 3 lines 26-43). It would have been obvious to one reasonably skilled in the art at

Art Unit: 2621

the time of the invention to modify Sham's image processing method by scanning the first and second images in parallel with two excitation beams before the first image is aligned with a grid as taught by Ramm. Such a modification would have allowed for a highly efficient method (Ramm col. 12 lines 60-65).

With regard to claim 11, Shams discloses that the first and second images are scanned sequentially (col. 11 lines 16-50).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

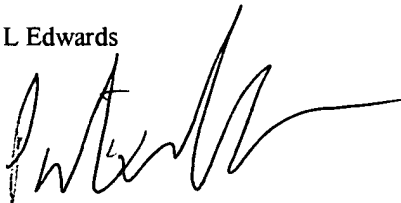
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick L Edwards whose telephone number is (703) 305-6301. The examiner can normally be reached on 8:30am - 5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

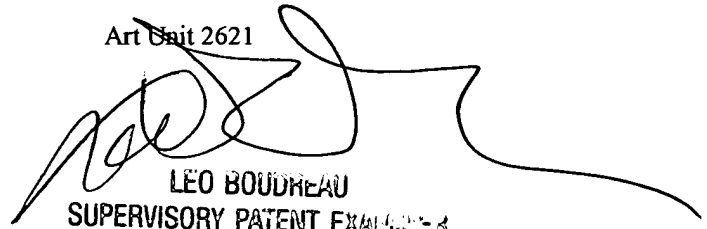
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patrick L Edwards

ple



Art Unit 2621



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600